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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/840,924	04/25/2001	David A. Jackson	10473-670	6504

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EXAMINER

NGUYEN, THU V

ART UNIT	PAPER NUMBER
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3661

DATE MAILED: 01/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/840,924

Applicant(s)

JACKSON ET AL.

Examiner

Thu V Nguyen

Art Unit

3661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,4,6,8-16,19,20,22 and 24-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9,10,25 and 26 is/are allowed.
- 6) ☒ Claim(s) 3,4,6,8,11, 14, 19-20, 22, 24, 27, 30 is/are rejected.
- 7) ☐ Claim(s) 12-13, 15-16, 28-29, 31-32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 3661

DETAILED ACTION

The amendment filed on October 30, 2002 has been received and considered. By this amendment, claims 1-2, 5, 7, 17-18, 21, 23 have been canceled, and claims 3-4, 6, 8, 9-16, 19-20, 22, 24-32 are now pending in the application.

Information Disclosure Statement

1. The information disclosure statement filed on August 8, 2002 fails to comply with 37 CFR 1.98(a)(1), which requires a list of all patents, publications, or other information submitted for consideration by the Office. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 3-4, 6, 8, 11, 14, 19-20, 22, 24, 27, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over January (U.S Patent No. 5,675,515) (enclosed IDS).

Art Unit: 3661

As per claim 3, January discloses a method of determining alignment between the wheels. The method comprises the steps of: indicating wheel positions on the vehicle with targets (col.10, lines 3-17); calculating front and rear wheel track (col.16, lines 53-59); and determining the relationship between the calculated front wheel track and rear wheel track by comparing the angle between the front and the rear wheel track (col.16, lines 40-42). January does not explicitly teach comparing the angle to a specified range for the angle. However, assigning a specified tolerable range for the angle between the front and rear wheel would have been well known. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to compare the angle between the front and rear wheels with a predetermined angle range in order to facilitate judgement of the alignment of the front and rear wheel without requiring the operator to perform manual comparison himself.

As per claim 4, refer to claim 3 above. January does not explicitly teach determining the relationship between the front and rear wheel by comparing the front and the rear wheel track to a specified range for the front and rear tracks. However, January teaches determining angles of the front wheel track and rear wheel track (col.16, lines 25-30) and calculating the relationship between the front and rear wheel tracks by observing the angles (col.16, lines 30-35). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to compare the angles of January with a predetermine specified range in order to facilitate recognizing if it is the front or the rear wheel that needs aligning.

Art Unit: 3661

As per claim 6, 8, refer to claim 3 above. January further teaches calculating the right and left wheel base 111-112, and 94-95 (fig.10) (col.16, lines 47-61). January does not explicitly disclose comparing the right/left wheel base to specified ranges. However, January teaches defining the right/left wheel base as in the conventional alignment system (col.16, lines 47-61), and further teaches that using the wheel bases to determine alignment of the right/left wheels would have been conventional (January col.16, lines 56-61). Further comparing the distance of a line connecting two known coordinates with a predetermined range of values to determine if the line suit a predetermined requirements would have been obvious. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to compare each right/left wheel base to a specified tolerable range in order to determine alignment status of the right and left wheels.

As per claim 11, 14, refer to claim 3 above. January does not teach calculating the first and second diagonals, and calculating skew angles between the diagonals and the wheel tracks as claimed. However, January teaches locating the coordinates 84-87 (fig.10) of the wheels (col.15, lines 25-27). Further, drawing diagonals between points of known coordinates would have been obvious in geometry, and determining the skew angle between the diagonals with other lines joining the four known points in a plane using an angular measurement device would have been obvious. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to draw and to calculate the first and second diagonals, and the skew angle

Art Unit: 3661

between the diagonal and a line joining the two known positions of the wheels of January, since drawing diagonal lines between four known points, and calculating the skew angle between the diagonal and a line joining the two wheel locations of January when needed requires only routine skill in the art.

As per claim 19-20, 22, 24, 27, and 30, refer to discussion in claims 3-4, 6, 8, 11, and 14 above.

Allowable Subject Matter

4. Claims 9-10, 12-13, 15-16, 25-26, 28-29, and 31-32 would be allowable if rewritten to overcome the claim objection set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter:

Prior art of record does not disclose a method and system for determining alignment between the wheels of a vehicle in which the positions of the wheels are determined by imaging the targets indicating the position of the wheels; the front and rear wheel track, the front and rear center point of the front and rear wheel track are determined, the interception point of a line from a one center point of the wheel track and perpendicular to the wheel track with the other wheel track is determined and the offset between the interception point and the center point of the

Art Unit: 3661

intercepted wheel track is calculated as taught in the combination of claim 1-2, and 9. Prior art of record, further, does not disclose calculating the first diagonal between the right front wheel and the left rear wheel, and the second diagonal between the left front wheel and the right rear wheel, the relationship between the front and rear wheel can be determined by comparing the difference between the first and the second diagonals to a specified range for the difference as taught in the combination of claims 1, 11, and 12 ; or can be determined by comparing the first diagonal to a specified range for the first diagonal, and comparing the second diagonal to a specified range for the second diagonal as taught in the combination of claims 1, 11, and 13. Prior art of record, further, does not disclose calculating the first and second skew angles, and determining the relationship between the front and rear wheels by comparing the difference between the first and second skew angle to a specified range for the difference as taught in the combination of claims 1, 11, 14-15; or determining the relationship between the front and rear wheels by comparing the first skew angle to a specified range for the first skew angle, and comparing the second skew angle to a specified range for the second skew angle as taught in the combination of claims 1, 11, 14, and 16. The claims 26, 28-29, 31-32 are the claimed system that is implemented to perform the method of claims 9, 12-13, and 15-16.

Response to Arguments

6. Applicant's arguments filed October 30, 2002 have been fully considered but they are not persuasive.

Art Unit: 3661

In response to applicant's argument to in page 15, first paragraph on claim 3, January does teach calculating the angle between two wheel tracks 103 and 104 (fig.10). Although January said the "wheelbase different angle", the angle difference is taught as being made between the track 103 and 104 (fig.10) (col.16, lines 40-42) those are the tracks as defined in the amended claim 3, lines 5-8.

In response to applicant's argument on page 15, last paragraph, and page 16, lines 1-3, on claim 4, the amended claim 4 does not explicitly disclose that the calculated tracks are distances as asserted by applicant. January teaches determining angles of the front and rear wheel tracks (col.25-30), since the angle of the tracks are part of the calculated feature of the respective track, January's teaching reads on the claimed limitation.

In response to applicant's argument on page 16, first paragraph on claim 8, January does not explicitly teach comparing the calculated right wheel base and the calculated left wheel base to a specified range, however, January teaches determining the distance of the right and left wheel base (col.16, lines 47-53), it would have been obvious to a person of ordinary skill in the art at the time the invention was made to compare the distance of a line to a predetermined value when desired, since comparing a length of a line with a range of value to determine if the line fits a special requirement requires only routine skill in the art.

In response to applicant's argument on page 17, second paragraph, January does not teach calculating the diagonals and the skew angles, however, January teaches determining the four positions 84-87 (fig.10) of the wheels, an ordinary person skilled in the art would obviously be

Art Unit: 3661

able to draw the diagonal lines between the four known positions and to calculate the skew angles between the known tracks and the diagonal line using an angular measuring device.

Claim 11 and 14 do not teach usage of the generated skew lines and angles to overcome obviousness of January and traditional geometry concept for measuring angle and connecting skew lines.

Cited Prior Arts

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Website www.math.com/school/subject3/lessons/S3U2L3DP.html teaches a quadrilateral with diagonal lines.
- b. Website www.mcps.k12.md.us/curriculum/math/frameworks.htm show a conventional way to measure an angle between two lines using an angular measuring device in question 11.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

Art Unit: 3661

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any response to this final action should be mailed to:

Box AF

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 305-7687, (for formal communications; please mark "EXPEDITED
PROCEDURE")

Or:

(703) 305-7687 (for informal or draft communications, please label
"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park V, 2451 Crystal
Drive, Arlington, VA., Seventh Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Nguyen whose telephone number is (703) 306-9130. The examiner can normally be reached on Monday-Thursday from 8:00 am to 6:00 pm ET.


Art Unit: 3661

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Cuchlinski, can be reached on (703) 308-3873. The fax phone number for this Group is (703)305-7687 .

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703)308-1113.

NTV

January 9, 2002


WILLIAM A. CUCHLINSKI, JR.
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